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PHOTOGRAPHIC INTERPRETATION REPORT



HF COMMUNICATIONS AND
TROPOSCATTER FACILITIES
ANADYR-UGOLNYY AREA
USSR

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INSTALLATION OR ACTIVITY NAME HF Communications and Troposcatter Facilities, Anadyr-Ugolnyy Area, USSR					COUNTRY UR
UTM COORDINATES NA	GEOGRAPHIC COORDINATES See Below	CATEGORY See Below	BE NUMBER See Below	COMIREX NO. None	NIETB NO. See Below

MAP REFERENCE

ACIC. US Air Target Charts, Series 200, scale 1:200,000

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ABSTRACT

This report describes and locates nine high frequency (HF) communications facilities and one troposcatter facility in the Anadyr-Ugolnyy area, near the northeastern coast of the USSR. The possible interaction of ten facilities in a command/control system cannot be determined. Two of the facilities form a radio communications terminal.

This report contains a location map, annotated photography, and mensuration of the ten facilities listed below:

Anadyr HF Communications Facility (Transmitting 1)

64-46-45N 177-42-10E, BE None, [REDACTED]

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Anadyr HF Communications Facility (Receiving 1)

64-50-15N 177-49-00E, [REDACTED]

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Anadyr HF Communications Facility (Transmitting 2)

64-44-30N 177-42-40E, BE None, [REDACTED]

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Anadyr HF Communications Facility (Receiving 2)

64-46-45N 177-37-30E, [REDACTED]

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Anadyr HF Communications Facility (Receiving 3)

64-46-30N 177-33-30E, BE None, [REDACTED]

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Anadyr Troposcatter Station

64-44-20N 177-22-45E, [REDACTED]

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Leninka HF Communications Facility (Probable Receiving)

64-44-20N 177-38-00E, BE None, [REDACTED]

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Ugolnyy HF Communications Facility (Transmitting)

64-43-59N 177-40-50E, BE None, [REDACTED]

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Ugolnyy IRBM Communications Facility

64-47-20N 177-57-00E, BE None, [REDACTED]

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Ugolnyy SSM Complex Radio Communications Receiver Station

64-46-27N 178-00-58E, [REDACTED]

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INTRODUCTION

The facilities are near the cities of Anadyr, Ugolnyy, and Leninka and near the Arctic Circle, approximately 350 nautical miles (nm) west-southwest of the Bering Strait.

Anadyr HF Communications Facility (Transmitting 1) and Anadyr HF Communications Facility (Receiving 1) form an integrated radio communications terminal with transmitting and receiving capabilities. The Ugolnyy IRBM Launch Site [] is adjacent to one of the facilities. The possible interaction of the HF communications and troposcatter facilities in a command/control system cannot be determined.

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BASIC DESCRIPTION

Anadyr HF Communications Facility (Transmitting 1)

The Anadyr HF Communications Facility (Transmitting 1) is 5 nm northeast of Anadyr. The facility (Figure 2, Table 1) contains 22 double rhombic antennas configured in day/night pairs, one unpaired double rhombic antenna, 14 quadrant antennas, ten horizontal dipole antennas, one unidentified antenna mast, and a control area. The facility is not secured.

Seven of the 23 rhombic antennas are switchable arrays (items 7, 8, 10-13, and 17). Antenna 17 is the only rhombic antenna that does not have a night counterpart. The switchable day/night double rhombic antennas should be able to maintain reliable circuits over "short hop" or "long hop" paths, depending upon propagation conditions.

The 14 omnidirectional quadrant antennas are so constructed as to provide seven antennas for night transmissions and seven antennas for day transmissions. Eight of the ten horizontal dipole antennas (items 38-45) are paired by azimuth and frequency to provide day/night pairs.

The control area contains a control building (item G), 11 support or administration buildings, and an earth-mounded bunker (item Q). Feedlines from the earth-mounded

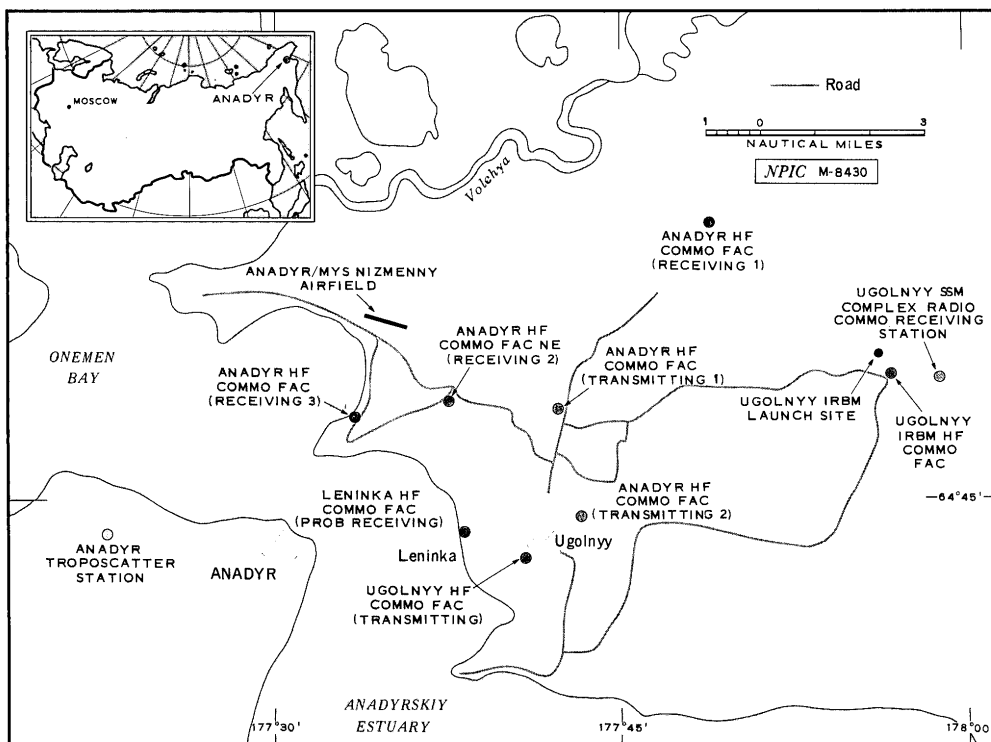


FIGURE 1. HF COMMUNICATIONS AND TROPOSCATTER FACILITIES IN THE ANADYR-UGOLNYY AREA, USSR

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bunker are connected to four of the omnidirectional quadrant antennas (items 24, 25, 28, and 31). A shielded powerline enters the control area and terminates in a steam-heated switching/transformer building (item F) located near the control building. Two telephone lines, one from the city of Ugolnyy and the other from the Anadyr HF Communications Facility (Receiving 1), apparently enter the control building.

A double fenced support area is located on the southeastern end of the antenna field; however, this area does not appear to be directly associated with the communications facility.

Anadyr HF Communications Facility (Receiving 1)

The Anadyr HF Communications Facility (Receiving 1) is 9 nm northeast of Anadyr. The fence-secured facility (Figure 3, Table 2) contains 14 fishbone antennas, six horizontal dipole antennas, four masts with unidentified functions, six quadrant antennas, a control area, and a support area.

Twelve of the 14 fishbone antennas are paired by azimuth to form six space-diverse pairs. The two remaining fishbone antennas are unpaired which indicates that they are used for shorter range communications or on circuits where maximum reliability is not required. Antennas 3 and 11 are paired on opposite azimuths, as indicated by the feedlines. It is probable that either one of the feedlines is strung through the antenna where it cannot be seen, or that the antennas are designed to listen to the same transmitter with one antenna utilizing the "short hop" and the other the "long hop" around the world. Fishbone antenna 9 is switchable and can receive on either the short or long "hop".

The six horizontal dipole antennas are paired by azimuth and frequency to form three day/night pairs. The relative orientation of the three pairs provides an omnidirectional capability.

The six omnidirectional quadrant antennas are constructed as to provide three antennas for night reception and three antennas for day reception.

A dark object is mounted near the top of one of the four antenna masts of unidentified function. No evidence of a Yagi array or a feed to the mast can be seen on available photography. A similar antennalike object is present at the Anadyr HF Communications Facility (Transmitting 1).

The control area contains a control building and three small probable equipment sheds. Two probable landlines and one probable powerline enter the control building. One of the landlines connects the control building to the main building (item G) in the support area. The second landline connects the control building to Anadyr HF Communications Facility (Transmitting 1). The powerline connects the control building to the switching/transformer building (items 1) in the support area.

The largest of the six buildings in the support area (item G) is identified as the administration building and possibly also is used as a data monitoring or recording building. This possible monitoring and recording function is suggested by the large size of the building, its location within the security fence, the direct landline connection to the control building, and the apparent bypassing of the building by the landline leaving the facility.

The generator building (item I) is connected to the switching/transformer building (item J) by a powerline. Both a high-voltage, shielded powerline which enters the facility and the powerline from the control building terminate at the switching/transformer building. The powerline arrangement and line construction difference indicate that the switching/transformer building receives power from either a high-voltage powerline or the facility generators, reduces it to the voltage required by the facility, and distributes it.

Anadyr HF Communications Facility (Transmitting 2)

The Anadyr HF Communications Facility (Transmitting 2) is 2 nm east-northeast of Leninka. The facility (Figure 4) consists of an operations area containing one rhombic transmitting antenna, one horizontal dipole antenna, a transmitting building, and a

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probable generator building. A support area containing a probable barracks and two support buildings is located south of the operations area. The control area is served by a probable landline which enters Ugolnyy; however, the line cannot be traced within the town.

Anadyr HF Communications Facility (Receiving 2)

The Anadyr HF Communications Facility (Receiving 2) is 4 nm northeast of Anadyr. The facility (Figure 5) contains an arch-roofed command/control building, a possible barracks, and three small support buildings of unidentified function. A landline/powerline from Ugolnyy enters the facility from the south.

Six HF antennas have been constructed around the control area: one double rhombic antenna, three horizontal dipole antennas, one vee antenna, and one quadrant antenna. The absence of a dissipation line on the rhombic antenna indicates that it is a receiving antenna.

Anadyr HF Communications Facility (Receiving 3)

The Anadyr HF Communications Facility (Receiving 3) is 2.1 nm south-southwest of the Anadyr/Mys Nizmenny Airfield. The unsecured facility (Figure 6) contains four bent double rhombic antennas, two bent single rhombic antennas, two horizontal dipole antennas, and six masts with unidentified functions.

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Fourteen buildings are dispersed throughout the control and support areas. A power/landline which probably originates in Ugolnyy enters the facility from the north.

Anadyr Troposcatter Station

The Anadyr Troposcatter Station is located 3.5 nm west of Anadyr. The facility (Figure 7) was last covered by high-resolution photography of adequate interpretability in June 1967, at which time the facility was under construction. Identifiable features include two parallel control/support buildings; one Type II troposcatter antennas; one Type IIA troposcatter antenna, and footings for three more antennas. When complete, the facility will probably have three pairs of antennas--one pair orientated generally east, one pair west, and one pair northeast. Accurate antenna orientations cannot be determined from available photography.

Leninka HF Communications Facility (Probable Receiving)

The Leninka HF Communications Facility (Probable Receiving) is 3.3 nm east of Anadyr. The facility (Figure 8) is unsecured and contains one rhombic receiving antenna, two possible horizontal dipole antennas, one very high frequency (VHF) FORK REST antenna, a control building, and four support buildings. In addition to the identified antennas, the facility contains five probably abandoned antenna masts. It is served by a probable powerline and a probable landline. The presence of the FORK REST antenna suggests that the facility is part of the air defense net for the Anadyr-Ugolnyy area.

Ugolnyy HF Communications Facility (Transmitting)

The Ugolnyy HF Communications Facility (Transmitting) is on the south eastern edge of the city of Ugolnyy. The unsecured facility (Figure 9) contains two double rhombic transmitting antennas, one bent double rhombic transmitting antenna, three horizontal dipole antennas, one mast of unidentified function, an equipment building, a transmitter building, a probable barracks, and an unidentified probable vehicle. It is served by a probable landline which connects it to Ugolnyy; however, the landline cannot be traced within the town.

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Ugolnyy IRBM Communications Facility (HF Receiving)

The Ugolnyy IRBM Communications Facility (HF Receiving) is adjacent to the Ugolnyy IRBM Launch Site [REDACTED]. The unsecured facility (Figure 10) contains one double rhombic antenna which shares a common mast at one end, one possible vee antenna, and a multistory control building.

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Ugolnyy SSM Complex Radio Communications Receiving Station

The Ugolnyy SSM Complex Radio Communications Receiving Station 7 nm east-northeast of Ugolnyy, appears to be abandoned. The station (Figure 11) reportedly contained four 5-3-3-5 fishbone antennas and two pairs of day/night vee antennas.^{1,2} As of October 1969, the facility contains one 5-3-3-5 fishbone antenna with one mast missing, and the remnants of three other antennas.

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REFERENCES

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MAPS

ACIC. US Air Target Charts, Series 200, scale 1:200,000

DOCUMENTS

1. NPIC.  *Communications Antennas, Anadyr-Ugolnyy Areas, USSR, Aug 64* (TOP SECRET RUFF)
2. NPIC.  *HF Communications Facilities, Ugolnyy MRBM Launch Site, USSR, Jun 65* (TOP SECRET RUFF)

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